<u>Amendments to the Claims:</u>

This listing of claims will replace all prior versions, and listing, of claims in the application:

<u>Listing of the Claims:</u>

1. (Currently Amended) A method of tracking references <u>that are likely to be the only references</u> to <u>a plurality of</u> objects <u>stored in</u> ~~of~~ an object-oriented programming environment, said method comprising:

determining whether a command is likely to place a reference to an object on an execution stack which is used to execute computer program code in said object-oriented programming environment;

determining whether there is a change in the flow control between the time command is likely to place said reference to said object on said execution stack and the time said reference is used to access said object when said determining determines that said command is likely to place [[a]] <u>said</u> reference to <u>said</u> ~~an~~ object on ~~an~~ <u>said</u> execution stack;

translating said command into another command <u>that indicates that it is likely that said reference is the only reference to said object</u> when said determining determines that <u>said command is likely to place said reference to said object on said execution stack and said determining determines that</u> there is a change in the flow control <u>between the time said command is likely to place the reference to said object on said execution stack and the time said reference is used to access said object, thereby effectively indicating that said another command is likely to place the only reference to said object on said execution stack;</u> ~~and~~

<u>executing said another command; and</u>

placing [[a]] <u>said</u> reference to said object on a reference stack associated with said execution stack when said another command is executed, wherein said reference stack is not used to execute computer program code and is designated to store only references <u>that are likely</u> to <u>be the only references to various</u> objects ~~which have been~~ stored in a heap, <u>thereby storing a reference that is likely to be the only reference to a particular object on said reference stack.</u>

2.   (Previously Presented) A method as recited in claim 1, wherein said object-oriented programming environment is a Java compliant operating environment.

3.   (Original) A method as recited in claim 2, wherein said determining of whether a command is likely to place a reference on said execution stack is performed during Java Bytecode verification.

4.   (Original) A method as recited in claim 3, wherein said determining of whether a command is likely to place a reference on said execution stack operates to determine whether a Getfield, Aload, Getstatic, or Return command is being performed.

5.   (Canceled)

6.   (Previously Presented) A method as recited in claim 4, wherein said method further comprises:

        determining whether a Putfield command is likely to overwrite a reference to an object on the execution stack before said reference is used when said determining determines that there is not a change in the flow control; and

        translating said command into another command when said determining determines that there is a Putfield command is likely to overwrite a reference to an object on the execution stack before said reference is used.

7.   (Original) A method as recited in claim 1, wherein said reference stack and said execution stack have the same size.

8.   (Original) A method as recited in claim 1, wherein at least one reference to an object is stored in an entry with an offset that is the same as the offset used to store said at least one reference in said execution stack, when said another command is executed.

9-21   (Canceled)

22. (New) A computing system capable of tracking references that are likely to be the only references to a plurality of objects stored in an object-oriented programming environment, said computing system is capable of operating to:

determine whether a command is likely to place a reference to an object on an execution stack which is used to execute computer program code in said object-oriented programming environment;

determine whether there is a change in the flow control between the time command is likely to place said reference to said object on said execution stack and the time said reference is used to access said object when said determining determines that said command is likely to place said reference to said object on said execution stack;

translate said command into another command that indicates that it is likely that said reference is the only reference to said object when said determining determines that said command is likely to place said reference to said object on said execution stack and said determining determines that there is a change in the flow control between the time said command is likely to place the reference to said object on said execution stack and the time said reference is used to access said object, thereby effectively indicating that said another command is likely to place the only reference to said object on said execution stack;

execute said another command; and

place said reference to said object on a reference stack associated with said execution stack when said another command is executed, wherein said reference stack is not used to execute computer program code and is designated to store only references that are likely to be the only references to various objects stored in a heap, thereby storing a reference that is likely to be the only reference to a particular object on said reference stack.

23. (New) A computing system as recited in claim 22, wherein said object-oriented programming environment is a Java compliant operating environment.

24. (New) A computing system as recited in claim 22, wherein said determining of whether a command is likely to place a reference on said execution stack is performed during Java Bytecode verification.

25.   (New) A computing system as recited in claim 22, wherein said determining of whether a command is likely to place a reference on said execution stack operates to determine whether a Getfield, Aload, Getstatic, or Return command is being performed.

26.   (New) A computing system as recited in claim 22, wherein said method further comprises:

determining whether a Putfield command is likely to overwrite a reference to an object on the execution stack before said reference is used when said determining determines that there is not a change in the flow control; and

translating said command into another command when said determining determines that there is a Putfield command is likely to overwrite a reference to an object on the execution stack before said reference is used.

27.   (New) A computing system as recited in claim 22, wherein said reference stack and said execution stack have the same size.

28.   (New) A computing system as recited in claim 22, wherein at least one reference to an object is stored in an entry with an offset that is the same as the offset used to store said at least one reference in said execution stack, when said another command is executed.

29.   (New) A computer readable medium including computer program code for tracking references that are likely to be the only references to a plurality of objects stored in an object-oriented programming environment, said computer readable medium comprising:

computer program code for determining whether a command is likely to place a reference to an object on an execution stack which is used to execute computer program code in said object-oriented programming environment;

computer program code for determining whether there is a change in the flow control between the time command is likely to place said reference to said object on said execution stack and the time said reference is used to access said object when

said determining determines that said command is likely to place said reference to said object on said execution stack;

computer program code for translating said command into another command that indicates that it is likely that said reference is the only reference to said object when said determining determines that said command is likely to place said reference to said object on said execution stack and said determining determines that there is a change in the flow control between the time said command is likely to place the reference to said object on said execution stack and the time said reference is used to access said object, thereby effectively indicating that said another command is likely to place the only reference to said object on said execution stack;

computer program code for executing said another command; and

computer program code for placing said reference to said object on a reference stack associated with said execution stack when said another command is executed, wherein said reference stack is not used to execute computer program code and is designated to store only references that are likely to be the only references to various objects stored in a heap, thereby storing a reference that is likely to be the only reference to a particular object on said reference stack.

30. (New) A computer readable medium as recited in claim 29, wherein said object-oriented programming environment is a Java compliant operating environment.

31. (New) A computer readable medium as recited in claim 29, wherein said determining of whether a command is likely to place a reference on said execution stack is performed during Java Bytecode verification.

32. (New) A computer readable medium as recited in claim 29, wherein said determining of whether a command is likely to place a reference on said execution stack operates to determine whether a Getfield, Aload, Getstatic, or Return command is being performed.

33. (New) A computer readable medium as recited in claim 29, wherein said method further comprises:

determining whether a Putfield command is likely to overwrite a reference to an object on the execution stack before said reference is used when said determining determines that there is not a change in the flow control; and

translating said command into another command when said determining determines that there is a Putfield command is likely to overwrite a reference to an object on the execution stack before said reference is used.

34.   (New) A computer readable medium as recited in claim 33, wherein said reference stack and said execution stack have the same size.

35.   (New) A computer readable medium as recited in claim 29, wherein at least one reference to an object is stored in an entry with an offset that is the same as the offset used to store said at least one reference in said execution stack, when said another command is executed.